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TANGANYIKA TERRITORY

The Development Plan

Report for the year

1948

1948
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TANGANYIKA TERRITORY

THE DEVELOPMENT PLAN

Report for the year 1948

The financial implications and the steps taken to implement the Territory's Ten-Year Development and Welfare Plan, as set out in the Report of the Development Commission published in 1946, were described in detail in the introduction to the 1947 Report. 1947 was largely a year of preparation; lack of materials and staff did not allow any more than the initiation of a proportion of the schemes approved. In 1948 both the staff and materials position improved and it can now be said that a real start has been made on the carrying out of the Ten-Year Plan.

In 1948 a separate Development budget was introduced and was voted together with the normal Territorial budget. All staff engaged directly on development works were shown in these estimates together with all approved schemes financed from the Colonial Development and Welfare Fund, the Agricultural Development Fund and from contributions from Territorial revenue. The revenue amounted to approximately £2,000,000, provided as follows:—

	£
Approved Colonial Development and Welfare Grants	916,361
Contribution from Agricultural Development Fund	322,406
Contribution from Territorial Revenue	260,000
Contribution from Surplus Balances	250,000
Advance from Territorial Revenue in anticipation of Loan Funds	250,000
Contribution from Native Authorities	1,133
Contribution for Land Bank	100

Expenditure of £1,796,464 was provided for and supplementary provision was made during the year bringing the total to approximately £2,000,000 but it is not expected that more than £1,062,494 will actually have been spent. The estimated expenditure in the Development budget up to the 31st December, 1948, is given in Appendix II.

During the year the Secretary of State approved the following grants from the Colonial Development and Welfare Fund:—

	£
Geological Survey (D.897)	128,000
African Education (D.871)	332,000
Soil Conservation (D.962)	110,014

As schemes have progressed it has been found that considerable revision in detail has become necessary. In view of this the Secretary of State has only approved the allocation of funds to cover schemes up to the end of 1951,

and has requested that fresh applications should be submitted during 1951 for the balance of funds required for the completion of the scheme revised in the light of the experience gained during the early years.

The Development Commission met four times during the year and approved eight new schemes for which supplementary provision is being made, mainly from the Agricultural Development Fund.

SECTION I.—CONSERVATION AND DEVELOPMENT OF NATURAL RESOURCES

Agriculture and Animal Husbandry

1. *Training of Agricultural Instructors.*

The long vacation period is being utilized to give the African teaching staff experience in field work and two are getting specialist experience in animal husbandry at Mpwapwa and in entomological work at Morogoro. The fifty-five Instructors who completed the senior course were sent to their Provinces for duty and the fifty Instructors following the junior course are getting further practical experience in their own districts. The reorganization of the syllabus into more advanced and less advanced courses, to embrace the wide variation in educational standards of the students and for the improvement in the practical work, was approved.

The Public Works Department has commenced to build the twelve dormitories on the new school site.

2. *Agricultural Training for Indians.*

The buildings have been completed but it is regretted that in spite of every endeavour it has not yet been possible to secure the services of a suitably qualified headmaster.

3. *Houses for Field Officers.*

Houses have been completed at Iringa, Same and Ukiriguru.

4. *Improvement in Supplies of Planting Material.*

A severe set-back has occurred to the programme for providing blight-immune seed to the potato-growing areas. The variety 914 (a) 91 which had reached the multiplication stage in the Iringa District and at Lushoto, was found to be highly susceptible to a new strain of the blight. The distribution of this variety in the Uluguru mountains and in Usambara has had to be abandoned. Trials are being undertaken with other varieties from Scotland.

The first consignment of fruit trees for trial on Kilimanjaro arrived from South Africa and have been planted out at a number of propagating centres.

5. *Central Breeding Station, Mpwapwa.*

Building operations continued but lack of sufficient artisans slowed down progress. Among the farm operations to be noted are the harvesting of three acres of sunflower, thirty acres of cowpeas, and twenty-six acres of maize.

Two pedigree Large White Pigs were received from England and six sows farrowed producing fifty-two piglets. Orders booked cover the whole of the production of the herd for the next eight months.

Sixteen poultry fold units were made on the station and used to accommodate the two thousand White Leghorn and R.I.R. chickens bought in Southern Rhodesia. Unfortunately an outbreak of disease killed a number of birds. Three hundred and twenty-one White Leghorn cockerels were sold.

The Masai ex-Kordafan flock of sheep produced twenty-one lambs. The Zebu herd was Tuberculin tested and eight reactors removed. Eighteen heifers and nine bulls were issued to demonstration farms, etc., and twenty-five bulls were sold to breeders.

Five African trainees from the Mbulu area continued to receive tuition and passed creditably in a recent examination in Stock Management and Dairy Practice.

6. *Development of the Tobacco Industry.*

The Assistant Tobacco Adviser continued his work among the tobacco planters of the Iringa District. The crop is expected to produce 2,000,000 lb. of flue-cured leaf, a substantial advance on past performances. The Assistant Tobacco Adviser visited Arusha and Babati to advise potential tobacco farmers in these areas.

The trial plots of tobacco for fire-curing which were planted in Ulanga gave promising indications and reports on the quality of the leaf are awaited.

7. *Improvement of the Copra Industry.*

One Agricultural Assistant has been employed in Bagamoyo and Uzaramo, and another in Pangani on improving the cultivation of the coconut trees with very satisfactory results. The Tanga Native Authority with the assistance of a loan from the Local Development Loan Fund has initiated a scheme to improve the production of copra by the construction of improved kilns and by making arrangements to buy, transport, and store the nuts from the various producers in the area.

8. *Development of Sukumaland.*

Headquarters.—The building programme, including housing and workshop at Malya, is nearing completion and considerable progress has been made with the piped water supply. No heavy machinery has been received as yet but a number of light units have arrived and have been used to assist tribal labour on dam construction. An aerial survey of parts of Sukumaland was carried out in June and much valuable information gained.

The Native Authorities have undertaken, out of their own funds, a very large building programme which includes a Council House, Chief's houses, a school, dispensary, and African staff quarters.

Agriculture.—Much time has of necessity had to be spent on preliminary investigation into areas available for expansion, to enable a co-ordinated programme to be drawn up. A number of dams and haffirs have been constructed in both the new and occupied areas and more are under construction and contemplated. At Malya a dam with a 440-million gallon capacity has been completed.

Considerable bush clearing has been done and soil conservation measures undertaken. Two "pilot" areas have been selected for the demonstration of methods of soil conservation and rehabilitation. Measures will include the establishment of fuel reserves, grazing reserves, ridge cultivation, the control

of storm water, and eventually manuring, and strip-cropping or ley farming. Work has continued in the "special area" (Bududhe) where there has been a spectacular improvement in the grass cover, and an absence of the normal dust storms in the dry weather.

It is hoped to utilize mechanical equipment to assist cultivation in the wet season.

Veterinary.—Progress in the building of the Malya Stock Farm continues. The main cattle kraal is nearing completion, and the building and installation of the dairy unit has been completed and, with the installation of a water supply, full dairy operations will be commenced. The foundations of the piggery have been laid.

The herd of Boran cattle has been maintained in good health and the milk yield is satisfactory—four cows each producing an average of half a gallon a day in addition to feeding their calves. Fodder crops have been grown for the cattle and silage laid down for the dry season.

Forestry.—An experimental nursery has been started at Malya and several varieties of trees have been planted. Nursery work was handicapped by the shortage of fibre pots for transplanting. The 300-acre block for experimental work at Igwata has been mapped and the boundaries demarcated.

Considerable difficulty has been experienced in finding suitable unoccupied areas for reafforestation in localities where planting is badly needed, but twelve acres of *Cassia siamea* were sown at Ngudu by Native Authority effort, about twenty acres at Malya, and a further two hundred and thirty acres have been hoed and tie-ridged in preparation for planting.

About ten thousand acres of existing forest have been reserved, and reconnaissance is continuing to examine the possibilities of further reservations.

9. *Extension of Ukiriguru Experimental Station.*

Development of the additional four hundred acres of land acquired is proceeding with levelling, filling in the gullies, the construction of access roads, and the provision of water supplies on which work is nearly completed. The building of houses for European and African staff is making good progress.

10. *Development of the Ghee Industry: Lake Province.*

The Training School at Ibindo was opened early in 1948 and the one at Utegi in June, 1948. The schools have been well attended and the standard of training satisfactory. Most of the grading and marketing of ghee has been put under the local Ghee Supervisor and has resulted in improved quality and a great increase in the quantity produced. European Supervisors and African Instructors have travelled extensively supervising production and instructing producers, with marked effect in the Kwimba and Maswa areas.

11. *Bukoba Coffee Sub-Station.*

The timber from ten acres of land has been felled and stumped, and part of this area has been dug and cleared of couch grass preparatory to taking a cleaning crop before coffee is planted.

A start has been made upon the building of the labour lines, and the route for the water supply has been surveyed.

12. *Construction of Dams for Rice Production.*

In the Western Province three dams with a total capacity of 4,500,000 gallons were constructed in the Tabora District, and three with a total capacity of 4,000,000 gallons in the Kahama District where a fourth dam started in 1947 was also completed. Another dam with a capacity of 3,200,000 gallons is under construction in the Tabora District.

In the Lake Province two dams at Nkungule were completed and work has been concentrated on the construction of furrows to carry run-off water from catchment and seepage areas into rice "mbugas" to increase flooding.

In the Central Province work on two trial dams planned for the Bahi Depression is progressing satisfactorily and the first dam is nearing completion.

13. *Soil Conservation: East Kilimanjaro.*

Work on the maintenance, protection and extension of the existing soil conservation system has proceeded, though slowly, owing to the absence of experienced staff.

14. *Housing for African Agricultural Instructors.*

The last three houses situated at Machame, Hai and Kirua Vunjo were completed. In the Western Province the four houses at Tabora, Mpanda, Kibondo and Kahama, are nearing completion and a fifth at Kigoma has been started.

15. *Cotton Experimental Station: Ilonga.*

Building is progressing and a pump house has been built, a pump installed and piping laid to pump water from the river to the reservoir site. The excavation of the reservoir is two-thirds complete.

16. *Rehabilitation of the Uluguru Mountains.*

The Agricultural Officer with selected African Instructors has completed a preliminary agricultural survey of the area and further data has been collected by the Assistant Conservator of Forests.

17. *Ulanga Rural Development Scheme.*

No considerable progress in the animal husbandry aspect of this scheme has been possible pending the further investigation by the Director of Veterinary Services of the incidence of east coast fever in the area. Meanwhile a herd of seventy head of cattle is being maintained and has remained free of disease.

Provided the necessary materials are available it is hoped to complete the construction of the "D" Boarding School this year.

Nine dispensaries, each staffed with a dresser, ayah and sweeper, have a daily attendance of some fifty or sixty out-patients. Each dispensary has an orchard of citrus fruit and bananas. An in-patients' ward made of burnt brick has been built at one dispensary at a cost of £100.

18. *Rehabilitation of Mlalo Basin.*

Considerable progress has been made on this scheme and the improved methods of cultivation carried out in the demonstration area are having an increasing influence throughout the Mlalo Basin. Ridge cultivation is

spreading, fodder crops are being planted, and nurseries for reafforestation, coffee and tobacco are being started.

A full report on this encouragingly successful scheme will be found at Appendix I.

19. *Luengera and Kitiyu Irrigation Schemes.*

Further investigation in the Luengera valley showed that land on the left bank of the river was much more satisfactory than that originally proposed on the right bank. A survey of the irrigation areas was made and it is hoped to get several hundred acres irrigated in time for the next rice planting season.

A survey of the Kitiyu area was started in September and a plan for the development of this area will be formulated shortly.

20. *Development of the Tumbi and Mwanhala Sub-Stations.*

Building construction continued at both sub-stations and a second dam has been built to extend the area under rice cultivation. At Mwanhala the main roads were resurfaced and contour drained and three miles of unsurfaced roads were made. In addition to other experiments in progress a twenty-acre plot of maize was laid down at each sub-station.

21. *Development of Rice Production: Southern Province.*

Experimental work on rice proceeds. A herd of Boran cattle has been acquired. Labour lines, dispensary, cattle byre, etc., are being completed. No decision has yet been made whether to proceed with the new dam pending further news of the railway and road survey lines, both of which pass close to the station.

22. *Chungai Filimo Water Supply.*

Intakes have been constructed and four thousand feet of piping has been laid and work on a watering point completed. Further piping has arrived and work on the extension of the pipeline is continuing.

23. *Improvement of Furrows in Moshi Lowlands.*

Progress has been retarded owing to the shortage of cement and the lack of experienced staff but work in certain areas was started in July and was supervised for the first six weeks by an officer of the Water Development Department.

24. *Purchase and Erection of a Saw Gin.*

An indent has been placed for the purchase of a modern saw gin for trial in the Lake Province and plans have been prepared for the necessary buildings.

25. *Improvement of Beeswax.*

No progress has been possible on this scheme owing to the difficulty experienced in securing the services of a qualified Beeswax Officer.

26. *Fisheries.*

A newly-appointed Fisheries Officer as well as a temporarily-appointed officer have been posted to Lake Rukwa to study and make recommendations on fishing development there.

27. *Reorganization of the Bukoba Native Coffee Industry.*

The Bukoba Native Coffee Board assumed control of the industry in November, 1947, and took over from the Bukoba Coffee Control Board its contractual liabilities to the United Kingdom Minister of Food, and is discharging them satisfactorily. The Board has appointed an agent in Mombasa.

The internal reorganization of the industry has been started by dividing the area into zones and appointing an agent to each zone under whom there are a number of licensed coffee dealers who purchase direct from the grower. Prices are fixed and published and "ready reckoner" lists of prices for small quantities have been issued. The agent and the coffee dealer get a fixed commission. It is intended to instal in each zone a power driven hullery for hulling and preliminary cleaning, and the necessary machinery and equipment has been ordered and an architect appointed to advise on buildings and layout. Final cleaning, grading and packing will be done in Bukoba.

The Board has embarked on the first five-year programme of a long-term scheme to improve and extend the cultivation of coffee. Nurseries for the supply of half a million Robusta coffee seedlings a year, to replace unthrifty and derelict trees, have been established, and arrangements are in hand for the building up and training of a body of Instructors to implement the programme.

In order to facilitate the Board's work and bring it into closer touch with the coffee producers, zone committees have been formed which consist in each case of representatives from all the Gombolas chosen by the people. Articles and bulletins setting out the Board's aims and policy have been published in the local vernacular press.

28. *Development of Ufipa District.*

The Development Commission has approved the opening of an Agricultural Sub-Station at Sumbawanga in the Ufipa District to demonstrate better methods of husbandry to the local people. The introduction and distribution of improved seed, the use of manure and compost, and the encouragement of "ridge" cultivation in place of the present wasteful "mound" cultivation, will be part of its work. Funds will be provided to cover the capital expenditure and the recurrent expenditure over the first five years (amounting to £2,500 in all) after which the Native Authority will be responsible for its maintenance.

A suitable site for the Agricultural Station has been selected and plans for building decided upon. Brick making and road construction has commenced.

29. *Surveys.*

No progress has been made owing to the difficulty in recruiting the necessary staff, but instruments and materials have been indented to obviate delay when the staff is finally found.

30. *Local Development Loan Fund.*

The Fund has been established with an initial capital of £50,000, and a committee consisting of the Deputy Chairman of the Development Commission, Director of Agricultural Production, an Assistant Chief Secretary, and one member of the Development Commission (E. C. Phillips, Esq., C.B.E.) has been appointed to administer it.

The object of the Fund is to make fianancial credit available for schemes for the improvement of peasant agricultural production. Loans are normally made only to native authorities, but in certain instances may be made to individual Africans when these loans are approved and guaranteed by the Native Authorities. Applications from individual Arabs will also be considered.

A number of loans have been approved for various schemes including the improvement of the copra industry, purchase of tools for local artisans, and the management of a coffee estate by a Native Authority. A free grant has been approved to assist in the resettlement of the Wagogo in a way to facilitate the introduction of improved agricultural and husbandry practices.

Mineral Development

31. *Coal Investigations (Muhukulu).*

An aerial photographic survey of the area has been made and a 1:50,000 scale geological map prepared. Roads of access were improved and extended.

Drilling commenced in August and the drill has now reached a depth of over five hundred feet, penetrating a portion of the upper coal measures. Open cast running at three points, including two sites at the lower coal zone and one at the upper coal zone of the upper coal measures, has commenced, the object of which is to collect adequate bulk samples for examination and testing.

SECTION II.—COMMUNICATIONS

32. *Roads.*

Reference to the major roads programme is made in the section of the report dealing with Colonial Development and Welfare schemes.

With regard to minor roads, work has been held up owing to lack of sufficient engineering and survey staff to carry out preliminary surveys and alignment.

33. *Improvements to Aerodromes.*

Extensive reconnaissance and investigational surveys have been made by the Consulting Engineers and the Chief Aviation Officer which will provide sufficient information for the newly created Advisory Board to frame a comprehensive aerodrome development programme.

Work on the extension and improvement of existing airfields has been carried out, and the Consulting Engineers have presented an interim report on the development of Dar es Salaam airport which is now being considered by Government.

34. *Telecommunications.*

Progress has been made with extensions and improvements in spite of the difficulty of obtaining materials and equipment.

The Mbeya Radio Station has been re-equipped and a telephone trunk from Dodoma to Kongwa completed. Auto equipment for the Dar es Salaam Exchange has been installed and brought into service, as well as an additional H. F. Transmitter to cope with the heavy groundnut traffic from the Central and Southern areas. Preparatory work is being undertaken in connection

with the installation of three satellite exchanges at Oyster Bay, Kurasini and the Bazaar area. Work on the Dar es Salaam Post Office Radio Station has been completed.

SECTION III.—SOCIAL SERVICES

35. *Medical Development.*

An application has been made to the Secretary of State for a free grant of £250,000 from Colonial Development and Welfare funds to finance a three-year programme of medical development.

36. *Education.*

Reference to the progress of the ten-year plan for the development of African education is made in the section of the report dealing with Colonial Development and Welfare schemes.

37. *African Urban Housing.*

Forty-eight two-roomed quarters and twelve three-roomed quarters have been completed in Dar es Salaam by contract and further contracts for fifty-four two-roomed quarters and six three-roomed quarters have been given and construction is progressing.

SECTION IV.—MISCELLANEOUS

38. *Township Development.*

Sir Alexander Gibb & Partners, Consulting Engineers, have been requested to undertake the investigation and design of an entirely new water supply for Dar es Salaam, and preliminary investigations have been made. Meanwhile extensions to the present supply system are being made as a temporary measure to meet the very greatly increased demand. The Consulting Engineers, Messrs. Howard Humphrey & Sons, have submitted a supplementary report on sewage disposal plans for Dar es Salaam which has been approved and preparations to call for tenders are now being made. Messrs. Howard Humphrey & Sons have also been requested to prepare a report on surface drainage in Dar es Salaam. Sir Alexander Gibb & Partners have been asked to advise on plans for the water supply of the new Mikindani port.

The staff of the Town Planning Unit were placed under the direction of the Town Planning Adviser who, with his own staff of two Town Planners, is now working as a Town Planning Section as a preliminary to the setting up of a permanent unit in 1949.

Various reports have been made to Government on administration and town planning schemes. A draft Town Planning Ordinance has been prepared and is about to be submitted to Government for consideration.

The Town Planning Adviser was asked to prepare town planning schemes for Dar es Salaam, Mikindani, Tanga, Mwanza, Arusha and Moshi as first priorities. Work is considerably advanced in each of these towns and preliminary schemes have been completed for each, but have been submitted only in the case of Arusha and Mikindani. Meanwhile individual layouts for parts of these towns have been submitted and in many cases are proceeding.

Tentative schemes have been prepared and individual layouts and advice given for a large number of other towns.

39. *Public Buildings and Works.*

Difficulties of recruiting staff and shortages of materials continued in 1948 and limited progress.

Fifty European quarters have been completed in the year and seventy are under construction. Arrangements for the construction of twelve Asian quarters have been made and designs prepared for single houses and blocks of flats. Plans for African quarters have been prepared and the investigation for suitable sites is proceeding.

40. *Land Bank.*

The establishment of the Land Bank is not correctly speaking a development project but for the sake of convenience the funds voted to provide the capital of this bank are shown in the development estimates. Full details of the establishment of this bank, its terms and objects, have been given in the Press and in a pamphlet published by the Government. The Bank commenced operations on the 1st October, 1948.

SECTION V.—SCHEMES FINANCED FROM THE COLONIAL DEVELOPMENT AND WELFARE FUND

41. Scheme D.805.—*Development of Mbulu District.*

The development staff under the District Officer consists of two Development Officers and three Field Officers. In addition nineteen African Instructors have been engaged on soil conservation and are also being trained to form the nucleus of three teams for soil conservation and land utilization work throughout the district. The building programme for the accommodation of staff and the Central Farm has been completed. Twelve miles of road have been constructed and improvements made to existing tracks.

About seventy square miles of tsetse bush has been cleared with communal labour according to plan, and two hundred and sixty-one families from badly eroded areas have been settled on new land. In Central Iraqw there has been considerable response to propaganda for the clearing of scrub to improve pasture.

The people of the Daudi area of Central Iraqw agreed to provide communal labour for soil conservation work, and 143,000 running yards of contour banks have been constructed in cultivated fields on slopes under twenty per cent. and 14,000 running yards of bench terraces on steeper slopes. It is estimated that about 3,500 acres have been treated.

A water survey of dam sites and pipe lines has been commenced, and a priority list of seventeen development projects has been prepared. Improvements and extensions to existing furrows have been made.

Considerable survey work has been done, and human and animal census figures are now available for assessing the acreage and estimated carrying capacities of the various areas so that a plan for better land utilization, culling, and redistribution of cattle can be formulated.

42. Scheme R.29.—*Pasture Research.*

Progress has been held up on account of the difficulty experienced in recruiting staff but some experimental and survey work has b en undertaken.

The problem of controlling economically the regeneration of woody plants in pasture has been receiving attention when establishing new experimental

plots. Various methods of grazing treatment and control of the regeneration of woody plants have been continued on the experimental grass plots at the Mpwapwa farm. Experiments include plant poisoning trials, selective uprooting and ring barking, veld burning and mechanical clearing.

Data on the grazing and carrying capacity of pastures is being collected in connection with suitable methods for utilizing the land. Promising fodder plants have been established under irrigation for trial and multiplication.

43. Scheme D.344.—*Improvement of Stock Routes.*

Conditions in general have continued to be good, grazing and water ample, and mortality very low. Considerable work on grazing extension and improvement, and the realignment of stock routes has been undertaken.

The reopening of the livestock trade between the Musoma and North Mara districts and Kenya has necessitated work on the routes and camps concerned. The stock route from Mpiji in the Eastern Province to Messrs. Tanganyika Packers' Meat Factory at Msasani, north of Dar es Salaam, has been surveyed. Mpiji is to be developed as the detrucking and holding ground for livestock railed from up-country to the factory.

The angledozer equipment has been in continuous use for developing a holding ground at Matamondo. The training of African drivers in the handling and use of this machine is progressing.

The numbers of cattle travelling along all stock routes has been slightly above average.

44. Scheme D.794.—*Forestry.*

Progress has been made in spite of the failure to obtain most of the additional staff required. A forestry charge has been created in the Southern Province, and considerable preliminary work on the examination of the Dry Zone Forest in the Western Province has been done.

In the Tanga Division overdue thinnings have been carried out in the Magamba cedar plantations and a road constructed to facilitate the extraction of the poles which are finding a ready market. In the Northern Division some fifty acres have been planted for additional fuel, and progress was made in assisting natural regeneration of camphor over about one hundred and fifty acres on South Kilimanjaro.

Wood-working machinery has been purchased to investigate the properties and uses of local timbers.

45. Scheme D.627.—*Development of Water Supplies.*

Drilling has been undertaken in the Tanga, Eastern and Northern provinces. Two successful boreholes which tapped artesian water have secured an invaluable interim source of supply for the new Mikindani port.

In the Western Province the Kahama dam has been completed and plans prepared for the Township water supply. Work is about to commence on the construction of a 25-million gallon dam at Tura, eighty miles east of Tabora.

In the Central Province eleven hand-built dams with a total capacity of 37-million gallons have been constructed. A piped water supply at Senyegalo in the Mpwapwa District is being laid down and the Kondoa Station water supply has been completed. Near Kandaga a start has been made by the Native Authority on the Masange pipeline to assist further cultivation at the foot of the Irangi Scarp.

In the Northern Province the Mengwe pipeline has been realigned and repairs made to the Messerani Dam. Piped water for Masai stock at Ol Molog has been laid down and the major part of the Mbulu water supply has been finished. Work on the 9-million gallon dam at Monduli is nearing completion.

In the Lake Province considerable progress has been made with the Ngudu water supply but lack of certain essential fitments is holding up completion of the work both here and at the Malya Stock Farm. The Biharamulo water supply has been completed and most of the work on the Ngara pumped water supply has been done.

Extensions to the Kilosa flood protection bank in the Eastern Province have been completed.

16. Scheme D.962.—*Soil Conservation.*

Two Agricultural Assistants continued to be attached to the Senior Agricultural Officer (Soil Conservation). Preliminary investigations of soil conservation problems and the need of a number of areas in the Central, Northern and Eastern provinces were made. The Tengeru Polish Camp has been chosen as a Soil Conservation Training Centre and the evacuation of this land is now awaited.

An application for a free grant of £110,014 for the period 1948-51 inclusive from Colonial Development and Welfare funds has been approved by the Secretary of State and the Senior Agricultural Officer (Soil Conservation) is now in a position to order the mechanical equipment that he requires for his programme and to search for staff. It is hoped to recruit officers with specialized training from South African Universities.

17. Scheme D.897.—*Geological Survey.*

The Secretary of State has approved a free grant of £128,000 from Colonial Development and Welfare funds for financing the first five years of the Geological Survey scheme. It is intended to prepare a geological reconnaissance map of the Territory, and the appointment of three Senior Geologists, a Mineralogist-Chemist, and seven Geologists within the first four years has been provided for.

18. Scheme D.822.—*Major Roads.*

The survey of the Namanga-Arusha-Taveta road has been completed by the Consulting Engineers, plans and specifications have been prepared and tenders for its construction will be invited at an early date.

A number of well equipped and established contracting firms of repute in the United Kingdom and elsewhere have notified the Consulting Engineers of their willingness to tender for the work.

Surveys are approaching completion on the Dar es Salaam-Ruvu sections of the Dar es Salaam-Tanga road and reconnaissance surveys are in hand on the Tanga-Korogwe road and it is hoped to call for tenders for sections of these roads in 1949.

The Consulting Engineers are making arrangements to increase their staff in the field and to speed up the survey programme.

19. Scheme D.871.—*Education.*

The Secretary of State has approved a free grant of £332,000 from Colonial Development and Welfare funds towards the total cost of £1,572,000 for the

development of African education over the first four years of the Ten-Year Plan, the balance of the sum will be found from territorial resources. The estimates for the Ten-Year Plan will need very considerable revision in consequence of the salaries revision award as expenditure under personal emoluments forms such a high proportion of the total estimated cost.

50. Scheme D.418.—*African Girls' Schools, Machame and Mbeya.*

With the exception of the main classroom block the buildings at Machame have been completed and work on the provision of piped water is progressing. The plans for the Mbeya Girls' School have been approved and work is about to be started.

51. Scheme D.598.—*African Girls' School and Teachers' Training Centre, Buiru.*

Plans are being prepared and the site has been surveyed.

52. Scheme D.833.—*Training of Ex-Servicemen.*

The Secretary of State has approved the extension of this scheme for a further period of one year to 31st December, 1949.

One thousand four hundred and twenty-six men have completed courses at the Mgulani Training Centre and 419 are at present under training. The greatest demand is for trainees in carpentry, building, plumbing, and painting trades.

53. Scheme R.173.—*East African Medical Survey.*

The Colonial Office Medical Research Council has sponsored a medical survey which in the first instance will be confined to four districts of Sukumaland. Preliminary work and investigation of the best way in which this survey can be carried out have been undertaken and final plans are under preparation.

54. Scheme D.455.—*Social Centres.*

Four centres have been completed and opened as social clubs at Bagamoyo, Chunya, Mpwapwa and Marangu and the construction of centres at Lindi and Mahenge is progressing. A Native Authority building at Lushoto has been purchased and will be used as a welfare club.

L. L. R. Buckland,
Acting Deputy Chairman,
Development Commission

Dar es Salaam,
1st November, 1948

APPENDIX I

MLALO BASIN REHABILITATION SCHEME

I.—Introduction

1. The Mlalo Basin is an area of the Western Usambara mountain mass. It has suffered from erosion of soil and is apparently over-populated. It is typical of the inhabited areas of the Usambara mountains. The Mlalo Basin may be described as that area which is drained by the Umba river, ranging from its source down to the 1,500-foot contour at the base of the mountain.

2. The objects of the Mlalo Basin Rehabilitation Scheme are :—

(a) To carry out a Village Survey ; i.e. collect information regarding the social, agricultural and other habits of the people, and to ascertain how these habits may be modified so as to arrest the progressive deterioration of their country.

(b) To develop a controlled area composed of an administrative unit (a "Mtaa") with paid labour, and to demonstrate in this area how the people should live and cultivate in order to make the best use of their land.

3. The Scheme commenced with the posting of an Agricultural Officer to the area in June, 1946. A start was made to collect and train African staff and to carry out a reconnaissance. By the end of 1946 forms had been drawn up for the Village Survey, a nucleus of staff was collected, mainly from the Agricultural Department, and the Village Survey began on a small scale. A map was commenced and a preliminary reconnaissance carried out of the controlled Demonstration Area, and a small plot of elephant grass was planted for trial for stall-feeding of cattle.

4. In 1947 recruitment of staff was accelerated and men who had passed school Standard X were collected. These men can question the people in the local Kisambaa language and record their answers on the Survey forms in English. They were also trained in the use of the Abney Level, the Prismatic Compass and other instruments necessary for the recording of slopes, areas, and other facts for the Village Survey.

5. With the help and advice of the Medical Officer of Health, Tanga, the Village Survey was broadened by the introduction of two new forms covering census by age groups, and vital statistics. The latter was designed for use during the complete calendar year of 1948. At the same time an African team of three comprising a trained Medical Unit was posted to the area for the health side of the Survey.

6. The boundaries of the Demonstration Area were finally fixed to embrace the whole of the "Mtaa" of Shita, and a contour map of this was completed by the Agricultural Assistant, Lushoto, and a number of copies of it printed.

7. In the middle of 1947 the conception of the rehabilitation work had to undergo a serious revision. Originally it was planned that the eroded hillsides would be re-grassed to arrest erosion and to permit natural rehabilitation to take place. This, however, was considered to be but a short-term policy, out of keeping with permanent improvement, because once pasture grasses become fit for grazing on the slopes, livestock would graze there and the same process of erosion would re-occur, as grazing the slopes is the most prolific cause of erosion in the Usambaras. Furthermore the people are obviously short of land and it was considered necessary to rehabilitate the eroded land and bring it under cultivation wherever possible. It must be emphasized that the problem of the rehabilitation of the Mlalo Basin is a human problem. There are, no doubt, many fine methods that can be used to stop the progressive deterioration of the Mlalo Basin and the Usambara mountains, but the only practicable methods must be those that are acceptable to the people and that can be carried out with the will of the people. This is no easy matter as the Wasambaa are poor agriculturists, unlike other mountain tribes. Furthermore they lack physical energy—more so than any of the mountain tribes yet encountered.

8. In commencing the work of the Demonstration Area it was decided to divide the eroded land into two classes. First the land with a slope of more than forty-five per cent. Such land will not be cultivated. It is either being afforested or being planted with bananas. Second, land with a slope below forty-five per cent is being cultivated, but only by using methods (preferably borrowed from other African tribes) that will preclude erosion. It was further determined that the mere prevention of erosion would slow up the deterioration of the area, but that in itself it would not be sufficient. Soil fertility must be increased, and soil improvement methods must run parallel with the prevention of soil erosion. The methods used to attain these objects are described below.

II.—The Village Survey

9. *Census.*—The census was completed during 1947. It covered the human and livestock population of every village in the Mlalo Basin. Information was recorded also about housing, sanitation, water supplies, local traders and industries. The population was recorded by Age Groups and these had to be chosen rather more in groups that could be accurately recorded, rather than those that would be the best from a statistical standpoint.

10. *Vital Statistics.*—The collection has been arranged to run for the calendar year of 1948 under the following heads—Deaths, Births, Immigration and Emigration—and covers every village recorded in the census once in every calendar month.

11. *The ten per cent Sample Family Survey* to cover the same area as the census and the Vital Statistics Survey and aspects of the sample family's life. The samples are chosen by randomized method in each village and consist of :—

(a) at least one landholder and his family from each village,

(b) from villages with a population of more than ten landholders, ten per cent of the landholding families are chosen,

and the information is recorded in English on forms under the following heads :—

(i) Constitution of the family, and age, sex, clan, tribe and religion of its members.

(ii) Medical data. (Other medical data is also collected from out-patients' register of Mwangoi dispensary).

(iii) Housing, sanitation and water supplies.

(iv) Movements.

(v) Income and expenditure.

(vi) Food grown on their own holdings.

(vii) Land tenure, utilization, and agriculture.

(viii) Livestock.

(ix) Education, marketing, and labour employed by the sample family.

This survey will be carried out once only. It is carried out by a team of Africans, including an African Health Information Officer, a Veterinary Guard, and Agricultural Instructors. The information obtained cannot be regarded as being perfectly accurate but it is the best obtainable with the staff available.

12. *Nutrition Survey* is carried out in a limited number of families by the Woman Nutrition Officer. A cross check is made of results from the ten per cent Family Survey.

13. *Malaria Survey.*—The Malariologist carried out a preliminary survey in August, 1948, and proposes to continue the survey at intervals from now on.

III.—Methods of Rehabilitation

14. The methods explained below are being carried out in the Demonstration Area with paid labour. Parallel with this work propaganda is being carried out in all other areas of the Mlalo Basin to get the people to adopt these methods for themselves. Later, the propaganda should be extended to the whole of the Usambara mountains, with due consideration to local soils and climatic conditions in each area, but the basic principles will remain the same.

15. It has already been mentioned that slopes of more than forty-five per cent will cease to be utilized for annual crops. They are being afforested or planted with bananas. Wattle is not being used for afforestation because it is seen that some of the worst erosion of soil is to be found on land that is under wattle. The policy is to utilize indigenous trees wherever possible and to choose only those exotics that are proved in the area and apparently do the least damage to the soil. The following trees have been recommended by the Forest Department :—

Stony area : *Pinus insignis* and *Pinus patula* for trial.

Other slopes : *Hagenia abyssinica*, *Gravillia robusta*, Japanese Camphor, *Cupressus Lusitanica*, and M'langi Cedar.

16. In areas where the slope is more than forty-five per cent, but where afforestation is not practicable owing to location, or some other reason, steep slopes will be planted with bananas. In this area these have proved to be excellent soil cover.

17. Slopes of less than forty-five per cent are generally being utilized for cultivation. Cultivation is either on the bench terrace or the "Hehe" ridge system.

The Bench Terrace. (Demonstrated on Plot 2)

18. A demonstration of these was included because they are the classic form of erosion control on steep slopes. The bench terrace consists of a series of steps dug out of the slope of a hillside, the top soil being replaced on top of each step. Thus the sloping land is turned into a number of level narrow strips.

The Hehe Ridge System. (Demonstrated on Plot 3)

19. This system is practised by some clans of the Wahehe in the Iringa District of the Southern Highlands Province. Those people live on soil which will not grow crops unless it is first "made". The process of raising the fertility of the soil to crop producing level in Iringa takes about two years. At the same time the method of layout precludes erosion. As this is exactly what has to be done in the Usambaras the method, with slight improvement, has been introduced here. The fact that it is purely an African system, evolved out of the necessity of another tribe, makes for ease of its introduction from a psychological point of view. The "Hehe" ridge consists of a ridge of soil about three feet across and eighteen inches high, built on the contour over a large core of plant residues and weeds which rot inside the ridge and so supply organic matter to the soil composing the ridges. The ridges are made three or four feet apart by scraping together the top soil to cover the vegetable matter of the core. They are strictly on the contour but to guard against any errors in layout they are "tied" with small ridges at right angles to them every six to ten feet. When the ridges are made a crop of sweet potatoes is planted on them by means of cuttings and these mature slowly owing to the disturbance of the C/N ratio caused by the rotting vegetation below, but the sweet potato crop thrives nevertheless and tends to open up the ridge while growing. The ridges can also be left fallow under weeds in the first year. In the second year gram or other crops are grown and the ridges can either be re-dug as they are or split and remade. The latter method is not recommended on the steeper slopes. It has been found that there is little difficulty in persuading cultivators that the "Hehe" ridge has many advantages and is suitable for all the crops grown in the Usambaras.

20. Where a large unbroken area of ridge cultivation is situated on a hillside the slope is broken at intervals, depending on local conditions, by bands of bananas or elephant grass planted across it on the contour. This is to prevent a landslip occurring through the soil becoming too wet. Normally the fields are so small that this will be unnecessary.

Distribution of Livestock

21. It must be repeated here that the wrong distribution of cattle is the most prolific cause of soil erosion. The local custom is for cattle and humans to occupy the same houses, and, as the villages are usually sited on the tops of hills, the paths of cattle going down to the valleys to drink are usually huge craters from soil wash. Further, the practice of grazing the hills in the vicinity of the houses, and on steep-sloped cultivation fields, causes a great deal of damage. Actually grazing for cattle is very short indeed and in order to retain the present level in numbers of cattle it is necessary to devise new methods. Fortunately the tribal custom is to retain the flat valley floors as communal grazing and around these the cattle distribution is being arranged. A cattle market has been opened at Malindi nearby to dispose of surplus stock and so keep the cattle population within bounds.

22. Housing for cattle is being constructed around the communal grazing areas and elephant grass for stall feeding has been established in communal fields in the vicinity. Fortunately the people normally deal with their cattle very much on a communal basis, so that there has been no unwillingness on their part to co-operate in the new idea. A grade part-bred Ayrshire bull is in use on a communal basis in the Demonstration Area.

23. Compost is manufactured by continual supplies of bedding being heaped with ash after it becomes soiled in the cattle byres. An easy regular system is worked for this. The elephant grass is cut and fed in the byres. Grazing is rotational and reduced to a minimum. Pennisetum salifex is being established on the communal grazing lands and these, with the fields of *Pennisetum purpureum* (elephant grass), will be established as four-year leys.

Water

24. The process of protecting water courses has commenced by planting a strip five yards wide on both banks of the main rivers with elephant grass, sugarcane or bananas. Swampy land is being drained and utilized. Furrows for domestic supplies are being aligned to serve as many villages as possible and permanent separate drinking places for cattle remain to be constructed. Irrigation furrows are being surveyed to stop the leading of water straight down the slopes.

Control of Burning

25. Except for those crops laid down in Native Authority Orders plant residues are not burnt but are utilized either in the "Hehe" ridges or as cattle bedding for compost manufacture.

Crop Rotation

26. Most tribes have some method on which their whole scheme of agricultural practice is based. Some are poor and lead only to shifting cultivation, while others tend to a permanent system. Whatever the end, however, there is nevertheless a custom of some kind. The Sambaa alone appear, on the face of the information collected, to have no tribal custom at all on the basis of which one can improve and build a system of permanent agriculture. They plant just what they happen to want at the time, which is mostly maize and

beans. Crop rotation is completely alien to them. It is, however, necessary to introduce systems of rotation of crops and attempt to get the people to follow them. The whole area of the Mlalo Scheme covers several different sets of climatic conditions, all of which are not present in the Demonstration Area. The whole Basin may be divided into three according to crops grown as follows :—

(a) Above 4,000 feet where wheat thrives.

(b) Below 4,000 feet where maize thrives and wheat does not.

(c) Areas suitable for rice.

The first two, (a) and (b), are present in the Demonstration Area and systems for introduction are being studied.

27. The rotations must be based around the Hehe ridge system of cultivation and that means a root crop of sweet potatoes in every fourth year. Sunflower, introduced in 1948, has been received with enthusiasm by the people as the only oil crop they can grow above 3,000 feet. Kenya Government wheat below 5,000 feet and Sabanero wheat above 5,000 feet are apparently so far fairly free from both yellow rust and the stem rusts and trials will continue. Roll tobacco has been the most valuable crop exported from the Usambaras for some time. Sorghum remains to be introduced for the lower areas and maize, beans and potatoes are grown generally, the latter somewhat sparsely since potato blight appeared five years ago.

Perennial Crops

28. Cassava is regarded as a perennial crop by people in areas above and around 5,000 feet. It takes over two years to mature and yields poorly in such areas and is not being encouraged except in areas suitable for it. Other perennial crops are bananas, sugarcane and coffee.

Communications

29. Paths that cause erosion are being re-aligned or closed in favour of new ones on better lines. Main paths remain to be hedged. A branch road from the main Lushoto-Mlalo road has been constructed into the heart of the Demonstration Area.

Improvement of Health

30. Pit latrines are being constructed near every family group of habitations. These are at least twelve feet deep and similar communal latrines are being made at meeting places. Drinking water supplies have already been mentioned. The diet is being improved by introducing vegetables, seeds of which are always on sale. Other crop introductions have already been mentioned. The Mwangoi Dispensary, where the medical team is stationed, supplies medical treatment as well as carrying out the medical side of the Village Survey.

IV.—Progress of the Scheme

The Demonstration Area, the Mtaa of Shita

31. *Population.*—Adult male 69; adult female 98; children 196—Total population 363. Area : 658 acres.

Livestock.—Cattle 150; sheep 30; goats 105.

Planned utilization.—Forest 119 acres; cultivation 500 acres; fodder crops 23 acres; pasture 8 acres.

32. *Progress.*—Plot 1 : banana planting completed; Plot 2 : bench terracing completed; Plot 3 : Hehe ridges completed except for strips of bananas to prevent possible land slips; Plot 4 : 3,490 M'langi Cedar trees; Plot 5 : 26,825 Pine trees; Plot 6 : 2,600 Japanese Camphor, 1,675 Cupressus, 660 *Hargenia Abyssinica;* Plots 7 to 11 and 14 and 15 : elephant grass completed, and Plots 10, 11, 14 and 15 are in use. Plots 12 and 13 : planted pasture.

33. The ten cattle byres planned have been completed and the road mentioned in paragraph 29 above is completed and in use. Water supply furrows are surveyed or completed.

The Village Survey

34. The census has been completed and the collection of vital statistics for the calendar year of 1948 is proceeding. The ten per cent Family Survey has been completed in the Mtaas of Shita, Mwangoi, Malindi, Fuizai, Dule, Handei, Zaizo, Kifulo and Mngaro. This leaves the Mtaas of Mlalo and Bagai only still to be completed. The Nutrition Survey and the Malaria Survey have already been mentioned above.

Progress of Propaganda

35. The neighbouring sub-chiefdoms are naturally interested in the Scheme, and Agricultural Instructors are explaining to these people what is being demonstrated. The neighbouring sub-chiefs of both Mtai and Mbaramo have been paying regular visits to the area with their elders and the Hehe system of ridge cultivation as well as elephant grass planting are being carried out in both these areas, particularly in Mtai. The progress in these two areas is a demonstration of what keen Native Authorities can do.

V.—Recommendations for the Future

36. It is impossible until the Village Survey is completed and the results statistically analysed to present any firm recommendations for the future. However, from the information already obtained it appears highly probable that it will be indicated that the Mlalo Basin cannot properly carry its present population, nor the rapid increase in population that is occurring. As Mlalo is but a typical area of the whole Western Usambara mountain block this fact will in all likelihood prove to be true of that whole block.

37. The Luengero and Kitivu irrigation schemes, the surveys of which are practically completed, are designed to provide some two thousand acres of irrigated land at the base of the Usambaras on the eastern and northern sides, but this in itself will not suffice to cope with the problem. There is, however, work in plenty on sisal estates at the base of the mountain and it is evident that if the Sambaa are to remain living in their mountains a large proportion of them must perforce migrate for periods to work on those or other estates. In the last report it was shown that the survey is revealing that some thirty per cent of the adult males of suitable age already migrate for periods and it is thus becoming apparent that the economy of the Usambaras will be bound up with the sisal industry at the foot of the mountains.

VI.—Summary of Expenditure

Recurrent (1946 to 31st August, 1948)	£2,382
Capital (1946 to 31st August, 1948)	£1,410.

APPENDIX II

ESTIMATED EXPENDITURE UNDER THE DEVELOPMENT BUDGET TO 31st DECEMBER 1948

Details of Expenditure	Actual Expenditure to 31.12.47	Estimated Expenditure 1948	Total
	£	£	£
SECTION I.—CONSERVATION AND DEVELOPMENT OF NATURAL RESOURCES			
Agriculture and Animal Husbandry	167,138	213,034	380,172
Forestry	890	19,655	20,545
Development of Water Supplies	141,237	153,310	294,547
Soil Conservation	74	10,125	10,199
Surveys	–	2,465	2,465
Geological Survey	–	10,070	10,070
Mineral Development	–	9,500	9,500
Total Section I	309,339	418,159	727,498
SECTION II.—COMMUNICATIONS			
Roads	–	117,600	117,600
Improvement to Aerodromes	22,169	20,000	42,169
Telecommunications	14,068	80,000	94,068
Total Section II	36,237	217,600	253,837
SECTION III.—SOCIAL SERVICES			
Public Health	–	4,000	4,000
Education	119,065	137,510	256,575
Social Centres	21,672	2,750	24,422
Total Section III	140,737	144,260	284,997
SECTION IV.—MISCELLANEOUS			
Township Development	13,094	32,685	45,779
Public Buildings and Works	79,480	160,000	239,480
Land Settlement	6,505	9,970	16,475
Subventions	–	14,425	14,425
Development Commission	2,000	15,295	17,295
Land Bank	–	50,100	50,100
Total Section IV	101,079	282,475	383,554
Total	587,392	1,062,494	1,649,886